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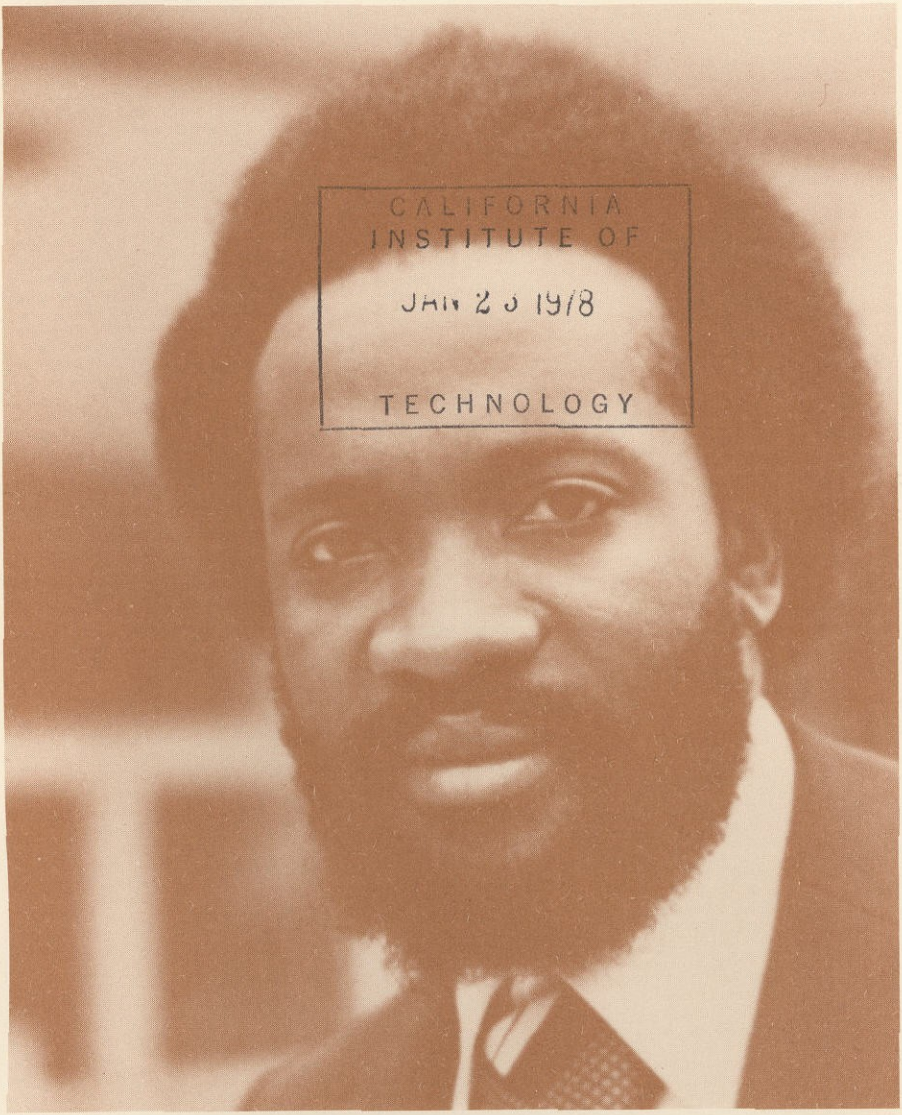

A Maasai Looks at the Ecology of Maasailand

Tepilit Ole Saitoti

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Cover illustration: Mr. Saitoti

PREFACE

Tepilit Ole Saitoti was born twenty-six years ago of Maasai parents, and received the traditional rearing of Maasai children. He tended cattle, sheep and goats and worked around the kraal. He departed from the norm at the age of eight when his father, who had 57 children and seven wives, (when Saitoti was last at home) decided to send him to school. From his one-room primary school, he returned to his family and became a traditional warrior (Morani) for two years. His people looked up to him because in defending his father's cattle, he speared a lion that attacked him.

In 1967 he joined the Tanzania National Parks Service and was soon a ranger and guide. Four years later he was selected as the "star" of the National Geographic Society film, "Man of the Serengeti." After obtaining a certificate at the Goethe Institute for language training in Germany, Mr. Saitoti flew to Los Angeles to narrate the film. He visited American universities with the film, and later enrolled in Emerson College, where he received (without ever attending secondary school) a B.A. degree in creative writing in 1976. Subsequently, he received a fellowship from the L. S. B. Leakey Foundation and completed a Master of Science degree at the University of Michigan in 1977.

Mr. Saitoti's goal, both in his undergraduate work at Emerson and in his ecological graduate studies, has been directed toward conservation in East Africa, particularly the interaction between the wild game and the traditional practices of his Maasai people.

Mr. Saitoti has now returned to Tanzania. In his own words: "I have a highly urgent task. While thinking about the Maasai in beginning this study I realized that one cannot consider the Maasai without considering the wildlife of East Africa with which they live side by side. It may be that if the wildlife vanishes so will Maasai culture."

E.S.M.

THE MAASAI CULTURE PATTERN HABITS AND ECOLOGICAL WAYS

Maasai were never organized as a single tribe under a unified political system. They were divided traditionally into a number of name sections, iloshon, each with its own territory and autonomous political structure based on a tribally or geographically organized age-set system.[1]

The two largest groups are the Ilkisongo and Ilpurko, the former living mainly in Tanzania, the latter mainly in Kenya. Others are Iloitai, and the Ilaitayok who live along the boundary. Other small groups are the Isalie who live in Tanzania, and the two smallest, the Damat and Dalalekutuk, both in Kenya. Each group organized its age-set system separately with the exception of Ilkisongo and Isalie of Tanzania because their age-set takes place together.

Individual male heads of compound polygymous families secured rights to communal grazing and water within their tribal boundaries, but, in general, the Maasai do share these resources even with outside people, except if the intruder's cattle are carrying contagious diseases which can be transmitted to their territory. In cases of this nature, tribal territories are defended.

Each tribe was itself divided into a number of localities, enkutot, with its own permanent water supplies for dry seasons, clearly defined boundaries for wet seasons, and pastures for grazing within which the families practiced an essentially transhumanic mode of pastoralism.[2] Each locality was organized with its own council of elders under the leadership of its own age-set spokesman, and functioned as a self contained socio-political unit. Localities varied enormously in size and population depending on local environment and other factors.

During the colonial period, the importance of tribal boundaries tended to fade slightly due to the imposition of colonial rule and administration as I have explained elsewhere. Presently, they are likely to be affected in Tanzania under Ujamaa policies of national ownership of land.

In Kenya recent national policies have encouraged freehold title to land. All these moves will have an impact on the traditional land ownership, and time will tell its positive or negative implications.

Within each locality of a tribe, the principal unit of livestock management is the kraal camp, enkang. It is an enclosure of several independent polygmous families who have joined together mainly on the basis of congeniality and common interest in the economic exploitation of their immediate vicinity. Kraal camps are the basic units of settlement and the principal centers of domestic life. Each camp is surrounded by a fence or built of thorn bushes, if they can be found; at times long poles are installed deep in the soil and bound together in the middle to resist any forced entrance. Entrance is made through a number of separate gates, each owned by an independent family. Wives build muddung igloo-like houses on either side of their husband's gate along the interior perimeter of the fence, with the first wife's house on the gate's right and the second one's house on the left, along that order. The total number of gates to a camp generally indicate the number of resident families.

In keeping with the strong egalitarian values of Maasai society, kraal camps are not organized under formal leaders, nor is there any overall kinship structure to the camp in which political authority resides. Patrilineal clanship regulates marriages and forms the basis for inheritance, but clans are not organized as local groups nor are there any formal clan leaders. Though some households of a camp may be related to others by various ties of kinship, Maasai hold that a camp should not consist solely, or even predominantly, of members of one descent group. Better for kinsmen to live apart lest they quarrel over cattle, they say, or grass belonging to every man, not just to a particular kin group. Settlement of disputes and enforcement of customary law within a camp rests mainly with the local council of elders, the Enkigwana, which is comprised of members of a particular age-set from all the kraal camps in a named locality.

While ownership and control of livestock reside solely with individual families, it is a measure of the common

economic interest and congenial cooperation that characterize kraal camp. The herds are corralled commonly at night in the open center of the camp for protection against predators. The herds are sometimes pastured and watered together as a single herd if it is efficient. Elders meet daily to discuss herd movements and determine who will supervise the herdboys. Though personal disputes or differences of opinion over herd management sometimes cause families to break away and join another camp, most camps maintain a core of congenial members over several years who work cooperatively, both among themselves and together with other camps of their locality, to insure the most efficient use of their community resources.

The Maasai pastoralism involves herd and family movements from permanent, high-potential, dry season pasture reserves based on permanent river, well or spring water supplies to temporary, outlying, low-potential wet season grazing areas based on rain ponds and other temporary surface water supplies.[3]

Presently some Maasai, because of geographic isolation or lack of external pressures, maintain traditional herding systems that are generally in balance with their subsistence needs, their social values and the local environment. Permanent water supplies influence the number of crude but efficient management techniques to conserve and improve their pasturage. These include elaborate grazing sequences involving systematic reconnaissance of and movement to wet season grazing flushes in order to create standing hay in the dry season reserves; regular use of donkeys to carry water, both to expand the grazing area and to permit camps to stay away from their dry season reserves as long as possible; moderate burning of grasslands during good rainfall years either to rid the area of ticks and other livestock disease carriers or to promote growth of more nutritious grass species; careful management of sheep and goats to avoid damage to grass during a critical growth period and to extend grassland by regular browsing of bush encroachment; and regular social rebuke and avoidance of families or camps that fail to adhere to good management principles.

The best examples of this first category of herding systems are found in the Maasai Steppe area of Tanzania

and various local areas in and to the west of the Iloita Highlands. The members who practice this old traditional management technique find it to be beneficial. This system enables its members to enjoy a high standard of subsistence and health and to sell surplus stock to pay taxes and purchase moderate amounts of consumer goods. Moreover, the livestock population tends to remain fairly static within this system over long periods of time, generally in balance with the local environment.[4]

A second category of herding consists of the Maasai who, because of the loss of their former, high-potential dry season reserves to European settlement, as I have already explained, or to wildlife parks or agricultural development, have been forced to establish permanent camps in low-potential formerly wet season grazing areas.

This category represents the antithesis of the first and has had disastrous effects on traditional herding practices, on social life generally, and on the local environment. For, although often provided with permanent bore-holes in these areas to water stock, there is limited scope for improvement or expansion of pasture resources because of low or erratic rainfall. Faced with deteriorating pastures, lack of grazing mobility and often high livestock losses, many families drifted into apathy and careless herding practices due to the hopeless struggle against impossible conditions which they saw as having occurred as a result of the loss of their former, high-potential dry season reserves.

Some elders took to marrying alien wives who could cultivate a bit to supplement decreasing pastoral supplies; others took to livestock trading or occasional wage-labor while many simply took to drink and increased apathy. The Sinya, Ngare Nanyuki and Longido plain in Tanzania which were tied to dry season reserves in the Kilimanjaro and Mount Meru Highlands, and many of the Rift Valley plains bordering Nairobi and the Aberdare Range in Kenya, represent herding systems of this category.

A third category, one practiced by the majority of Maasai today, consists of all those families whose situation and standards of herding fall somewhere between

the above two extremes. Faced with increasing pressure on their land and population increase, pastoral Maasai of this third category continue to fight with a combination of old as well as new management practices -- such as dietary habits -- against what can only be described as an insidious decline in their total situation.[5] Many of their existing high-potential reserves are already planned for alternative vs. economic use, such as wheat production, alien individual or company ranches or wildlife tourist attractions. While such development schemes are likely to result in significant short-term benefits to the national economy, they continue to eat away at Maasai pastoral potential and create long-term problems as to the most efficient and beneficial use and development of the low-potential areas into which the Maasai have progressively been pushed -- a situation which will eventually involve higher capital costs to solve.

THE MAJOR PROBLEMS FACING THE MAASAI

The major problem facing the Maasai is the loss of their land. The land which was taken during the colonial time for European settlement was never given back. To add insult to injury more land was turned into national parks for tourist attraction. More than half of the great national parks of Kenya and Tanzania are located in Maasailand. If one asks why are half of the national parks located in Maasailand, the answer will be Maasailand is rich with animals.

The wildlife is rich in Maasailand because in great part the Maasai live in harmony with nature. The trend has been to isolate and separate wildlife from the humans who have long used the land with the wildlife and who in great part are responsible for their existence today.

A scientist believes that man created Savanna by setting fire whereupon ungulates and predators found their home. Since man has had great influence in the past creating these environments, it is difficult to imagine that by excluding all human influences in the future it will be possible to maintain what we wish to preserve.[6]

Pastoralism has also exercised an important and often beneficial influence on the historical development of certain ecological regimes in Maasailand over the past three thousand years, again in ways contrary to previous interpretations. For example, for many years wildlife conservationists have argued that traditional pastoralism was destroying the environment and endangering the future of wildlife in areas such as the Serengeti plain, Ngorongoro Crater and Amboseli Park. Yet, research by a host of recent ecologists (e.g., R. Bell, M. Watson, Mr. Gwynne, D. Western and M. Rainey) have demonstrated that the particular short grassland regimes of these areas which today support vast herds of wild ungulates and their predators, were not created by nature alone, but rather by pastoralists and the intensive grazing of their domestic livestock and their judicious use of fire.[7]

Except for buffalo, the majority of wild ungulates in East Africa are ecologically adapted in their grazing-browse patterns to a particular layer of short to medium grassland herbage, and they are unable to utilize efficiently medium to tall grasses. Short grassland left solely to nature quickly reverts to tall grasses followed by rapid bush encroachment, thereby reducing the herbage available to these plain ungulates. For instance, in 1957 pastoral Maasai were forced to move permanently from their Imore Kopjes because it was thought that their alleged overgrazing would endanger the national migratory routes of the Serengeti plain's ungulates. Yet today the area is dominated by Themeda triandra (red oats grass), a tall, highly nutritious fire resistant grass, and it is also virtually devoured by the plain's annual ungulates migrations. In short, rather than destroying the wildlife environment, it now appears increasingly clear that heavy pastoral grazing of medium to tall grassland regimes is both a necessary and beneficial condition for the development and maintenance of the vast herds of wild ungulates that are found in these areas today.[8]

While there are other problems confronting the Maasai, they find the wildlife the most acute problem of all. These animals not only exert pressure on the little land they are left with but they also spread diseases. Milignant catarrh, Engeeya oingati, is a pestilence, spread on the grass by the afterbirth of the calf of a wildebeeste, to which domestic

cattle alone are susceptible. Other diseases spread by wild animals are anthrax, black quarter, rinderpest, and brucellois, a contagious abortion which appears when wild and domestic species graze together.

The Maasai find these problems not acceptable after huge tracts of their land were converted to national parks to accommodate the wild animals. The dissatisfaction is making the Maasai speak out in defense of their land as they have always done when they think they are being mistreated.

Ole Sindiyo, who is a Maasai game warden wrote:

> We have to share our land with wild and dangerous animals. We have to learn to give way to the elephant, the rhinoceros, the lion, etc., and this has not been our way of life. Many of us have lost children, others have lost stock and relatives to these wild animals which belong to the government. The government has value for these animals but they are of no value to us anymore. The value of these animals which we know about is that they used to be the source of our traditional trophies, such as Kudu horns used for war signals, lion manes worn as a sign of gallantry by the morans [young warriors] buffalo hides for shields, elephant tusks for ornaments worn by the moran etc. . . . the use of these things in our daily life is quickly becoming a thing of the past. The value of wildlife being gone, we know of no other value whatever and yet our cattle are either being killed or injured by these animals for food even in times of extreme famine despite the fact that we share our land with them. The presence of these animals in our district means loss of lives and stock every year and nothing else.[9]

For the first time the Maasai will start to question and even resent the existence of wild animals in their land. Unless the authorities share part of the wealth generated by wild animals and help change their attitude, the animals will be hunted for political reasons as it has happened in Amboseli.[10] Very soon those people who have ignored the

Maasai the way one ignores a dry landscape will start to notice them. They will not only ask for a shilling for a photograph but a fair share of tourists' money, and if they are not given, the animal will face a decline. The Maasai responds that if the wildlife is to be an asset to the whole country, then let the whole country do something about it. Why should he be saddled with problems of maintaining wild animals at his own expense? Unless the Maasai views are taken into account every inch of the way a hundred ecological surveys and a thousand "save the wild-life schemes" will achieve nothing beyond hardening him further against zebras and lions.[11]

To add to the ecological problem we have already mentioned, there is a host of other problems with which the Maasai are confronted. The other problems are social rather then ecological.

The Maasai traditions have withstood radical changes which have taken place in their land for the past one and a half centuries. The Germans came and went and so did the British, and the Maasai stood firm with their tradition and customs. But long after the British and Germans had left, the traditions they brought have remained to challenge Maasai rigid tradition. Now if they don't take care it is going to defeat them. It was their land which has protected their tradition. When the land is gone they will have no other shelter. While portions of Maasailand were taken to settle Europeans as I have mentioned before, they were still able to migrate to avoid serious catastrophies like the 1960 dry spell. Now with national parks added, agriculturalists' encroachment and other public use, the land is shrinking very fast.

Progress and development have been the yardstick of all endeavors and often do not coincide with the Maasai way of thinking. There are the inevitable changes which come with development, be they positive or negative, and while I agree that it is impossible for Maasailand to remain static when all around them changes are occurring, there are those changes which are not very desirable. The attitude of trying to develop the Maasai by changing them to become settled mixed farmers is not desirable. This method was tried during colonial time as I have already mentioned.

In 1968, wheat schemes undertaken by Maasai in the Narok district of Kenya not only produced surpluses to an extent that government could not dispose of the grain profitably and lost large sums in subsidies, but Maasai were then prevented for the next two years from replanting and were urged to return to full-time herding while their fields remained idle and nonproductive.

Maasai pastoralism has begun to have detrimental effects on local environments, due largely to progressive overpeopling, overstocking and overgrazing that have resulted mainly from the loss of high-potential areas on which their traditional herding systems were formerly based. Much of the injurious effect has been either caused or exacerbated by poorly designed and highly erratic development schemes and policies that were imposed on them during this time.[12]

Misled by popular misconception as to what Maasai traditional pastoralism consisted of, development schemes have tended to be limited in scope to the more obvious, high-potential areas of Maasailand, thereby unwittingly creating a host of new problems in the low-potential areas, to which increasing numbers of Maasai have been forced to move. Such schemes tended not only to ignore the vital interdependence of wet season grazing areas to dry season reserves for achieving maximum herding mobility and grazing efficiency and to leave unsolved the problem of pastoral development in the low-potential areas, but because they inevitably denied access to some former high-potential areas users who got overlooked in the initial plans, they also created impossible management problems for traditional pastoralism in the low-potential areas, to the detriment of the total environment.

Secondly, virtually all development schemes initiated among pastoral Maasai have failed to achieve their stated aims because of crucial defects in the planning process itself. Among the most prevalent errors have been: (a) failure to look at and analyze the history and experience of past innovation schemes; (b) failure to acquire good preplanning data on the empirical facts of the area concerned, against which development success could be monitored and

evaluated; and (c) failure to build into the plan adequate and efficient safeguards to enforce compliance to monitor and evaluate progress, and to ensure that implementation is fulfilled.[13]

A close look at most devlopment projects in Maasailand, gives one the feeling that the land is only productive if it is agricultural and not pastoral. The projects have always been agriculturally oriented. This has been true of the past colonial legacy if one reflects on the huge wheat project initiated during and after the war. This development, which was geared toward agriculture rather than what the area is best suited to, has been aped from the British authority by contemporary Maasailand developers. The tendency has been to initiate huge homogeneous agricultural projects or to import range management methods, in a Texas range management version, to a country which is different from Texas climatically as well as culturally.

The developers have failed to borrow any management methods from the indigenous people who must have acquired immense and valuable experiences of how best to utilize their environment from centuries of dealing with it. Instead, they have tended to prescribe their own ideas irrespective of the traditional methods. Because of this, they have met either resistance from the local people or failure in the projects. Range managers should learn from the experiences of other scientists who once rejected shifting agricultural methods which were carried out by local people to exploit the rain forests in the tropics, but who in the long run came to learn that it was the only way to exploit that climatical zone.

Maasailand does need certain modification, but let it be along the line of what is available rather than replacing it with something else. It should be clearly acknowledged that grazers (wild and domestic animals) are assets of great potential and, therefore, they should be given their right place in the economic sphere of the country rather than the present elementary position. Maasailand as of the present is very productive indeed. At various times of the year it even surpasses certain agriculturally intensive areas, despite its semi-arid appearance. All the tourist money which plays an important role in the tourist industries of Kenya and Tanzania is in Kenya alone K. 24 million (67 million U. S. dollars) in annual revenue. Maasailand

is also a major source of protein, hides, skins of wild and domestic animals. Yet on top of these gains, the Maasai have been accused of contributing very little economically for not selling their cattle. The accusation is disputable because the Maasai do sell their animals except when prices are very low. It has happened that because of poor cattle prices a lot of stock are driven outside the country to better markets. The Maasai, therefore, do sell their animals, not exactly where the government would want them to sell, but where they expect to get better prices.

One cannot separate the Maasai from their cattle and it would be true for anyone to say without cattle there will be no Maasai. The Maasai, knowing this better than anyone else, love and care for them. They have developed cattle management methods which can only be matched by expert veterinarians. The cattle are very special in Maasailand, themselves a part of the culture. No ceremony can be performed without including a cow in one way or the other. A family's cows are known personally and loved, the way one knows and loves one's children. Their behaviors are known and even their sounds can be recognized when they "moo." Cattle are regarded as wealth -- and prestige.

Cattle-related values affect a whole range of the society structure, the role of history, folklore, pride and personal values. Most Maasai songs and poetry are based on cattle. When one is still young he is taught how to sing to the cattle, to describe their horn formations, humps, colors, even little details of each individual, including pecularities. A Maasai child must have a sharp eye for cattle. He must be able to tell of them when they get lost without counting them the way one counts money.

A government official or a consultant may view changes in cattle and land rights as a resource management decision designed to produce an optimum economic contribution to the country. The cattle owner views such changes as tampering with the foundation of his society. A government official and a cattle owner may independently view the same thing very differently. The average man is principally concerned with his cattle and his children. It is doubtful that anyone who has not been part of an ancient cattle culture

can fully appreciate the consequences of changes in land, water and cattle rights. These changes affect the roots of the society itself -- even the way in which individuals perceive themselves and evaluate or accept others.

A major handicap in resources administration where African cattle complexes are concerned, is a question of perceived values in which economically-oriented administrators may view cattle as an impersonal resource to be managed for maximum monetary gain, while those who belong to the cattle culture view the livestock population as the matrix of the society . . . something that is not to be tampered with by an outsider.[14]

Instead of the developers adding unnecessary pressure on Maasailand by introducing agricultural and other projects, they should instead find ways to add or retain the present assets derived therein. The Maasai are dissatisfied with the presence of wild animals on their land for a lot of obvious reasons. They are competitors, carriers of diseases, and in general a liability to them.

For the government, wild animals are hard currency earners and constitute genetic material for future generations of game. Therefore they created national parks and game reserves as a solution to prevent human encroachment. But can boundaries set under political constraints be compatible with ecological reality?

Creating national parks and game reserves resulted in moving people from their land. The Maasai have yet to be convinced that they are better than the zebras. "Of all things people are the most precious."[15]

The Maasai like anyone else have sentimental, spiritual and economic reasons for wanting to stay in the land of their birth. If the Jews are fighting to the death to protect and retain their desert-situated Jewish State, why should a Maasai accept moving from the celestial beauty of the Ngorongoro highland or the rolling hills Loliondo?[16]

It should be known that the Maasai are dissatisfied

with their land which has been converted to national parks. The authorities' intention has been to exclude people activities completely, but the situation is ironical. People are still entering the national park illegally to graze their cattle, defeating the intended purpose. Animals also wander outside the park to destroy farm and overgraze people's rangeland.

Why, then, the bother to separate the two in the first place? Would it not have been better to realize that they are inseparable and indispensable and with the help of ecologists and past experiences try to formulate management plans which will include the pastoral and the wild animals instead of trying to manage them separately?

Exclusive national parks do not allow managers to deploy the full range of techniques for conserving wildland resources. National parks' doctrine as applied in Maasailand leaves nature to take its course without interference by man. The definition of a national park leaves many people still puzzled. One is made to think it is similar to feudal England before the signing of the Magna Carta: the royal hunting grounds where only the aristocrats hunt and the rest of the people are persecuted when they are caught hunting. The difference so far is that the people hunt with cameras nowadays. Only those people with the money to be tourists are accommodated to carry on recreation activities, and the many who cannot afford it are excluded. Soon we will have to call upon Presidents Nyerere and Kenyatta to sign another Magna Carta.

The Maasai and their cattle have been part of these African savanna for centuries. Without them it would not be the same (and therefore unnatural). People who strongly support the existence of national parks should define ways and methods to prevent the wild animals from crossing the park boundaries into human settlements; and if they cannot, they should be tolerant of Maasai cattle when they cross the park boundary like the Maasai are to the park's wildebeeste. It must be a two-way relationship.

National parks can work only if they accept their neighbors' existence and tolerate occasional intrusion. The worlds on both sides of the park boundary would get along

better if there were a clear indication of what each can do for the other. By contrast if they spend their energy resisting one another, there is little doubt as to which must be the ultimate winner.[17]

POSSIBLE SOLUTION THROUGH MULTIPLE USE

Now, ideally, it is possible to work out a compromise whereby wildlife and man can find a balance. Multiple use is the answer. Developed first as a modern management tool by the U.S. Forest Service in 1897,[18] it has been under traditional use in Maasailand for centuries, as I have already explained. Multiple use is defined as the management of all the diverse renewable natural resources in such a way that the combination of utilization satisfies the need of the people. Such a combination includes economic, social and cultural traits of the people with minimum damage to the soil and other basic environmental factors.

Ngorongoro Conservation Area in East Africa is another land unit which is administered for fully integrated development of various forms of land use. Human development goes hand in hand with intensive conservation programs. Conservation of soil, natural vegetation and wildlife, protection of watersheds, and livestock and tourism can coexist in harmony with the desirable resultant social development of the Maasai and other resident people. Modern and traditional methods of management were put to use in 1954 and have been in use up to now. It has been easier for the Maasai to accept this approach in this area. As long as none is deposing the other, a peaceful coexistence is advocated. People have come to appreciate and have tolerated each other.

A properly planned conservation unit is a combination of various factors that are greater than the sum of its parts. On its own, a forest or a habitat might fade away, the wildlife too, but together they can subsist indefinitely.[19]

Rational development of natural resources on a multiple use basis requires that individual landscape units be allocated to the most suitable form of use. The inherent biological productivity of the units and the relevant social and economical requirements are important factors in allocating land use.[20] The management of resources can be directed toward the social and economic necessities without eliminating the future option for management.

When the land is abused one loses the base soil on which all other resources depend, so great care must be taken to control soil erosion. Carelessness will reduce productivity such as losing soil sediments into rivers and reduction of river waters. Confuscious said: "to regulate the mountain is to regulate the river."

It is possible that multiple use management may not produce the greatest monetary return immediately because one has to give fewer commercial values. For example, the harvesting of timber above watersheds can produce money, but it can also produce soil erosion sediments and a diminishing water supply. The objective of range management is maximum production of meat and animal products without damage to the land.

Major management phases include:

1) Improving usability of the range

2) Improving proper grazing use

3) Improving forage production

4) Managing animal units

Range managers are required to have intimate knowledge of the resources and the interrelationship between the resources. Range management of a combination of wild and domestic herbivores is practical and economically feasible in Africa.[21]

Where a range is jointly occupied by domestic stock and wildlife there is competition and the stocking rate should be adjusted accordingly. Management of game requires management of grazing resources. Protection against fire leads

to bush encroachment at the expense of grasses. Control burning at times appropriate to each locale is one solution, as is careful monitoring and control of the numbers to the balance among grazing species.

Equally important is environmental management to decrease erosion and to maintain perennial stream flow as a water resource for game reserves. Conscious reclamation efforts may be required to prevent further damage by wild animals or livestock overgrazing.[22] As a modern society maintains an active interest in wildlife population, it must recognize the need for scientific study of the ecosystems and the requirement for active intervention to maintain those systems.[23]

The degree with which multiple use could be accomplished depends on the manager's understanding of multiple use. Selection of managers is very necessary to give them a career flow and a thorough education. It is important to have orderly management focus that reduces to a minimum the possibility of committing serious errors in the management of resources. Flexibility is required. As social and economic condition changes the multiple use should change to adapt to and to satisfy these new situations.

If the management plan is well designed and executed rarely is there an irreversible damage to the resources. A good management capacity will absorb and administer the implementation of the project as recommended by the expert.

The Ngorongoro and Serengeti experiences have demonstrated the conflicts of separation between tribal land and national parks. Separation methods like fencing, which once had been tried in Kruger National Park, and even for a short time in the Serengeti plain, have failed to fulfill the intended objectives. Herds and herds of wild ungulates have continued to cross the boundary and destroy rangelands and farms. The whole of the eastern Serengeti plain from Kakesio to the north Salei plain is flooded by wild ungulates during the rain months of November to May. They do not only overgraze the area but they also spread contagious diseases, Engeiya oingati (malignant catarrh) taking the highest toll of domestic cattle. Crop destruction has also

been noted when the migration of animals go beyond the western corridor of the park, particularly into the Lamai wedge and adjacent areas.[24]

People who are affected by these are very much opposed to the wild animals' intrusion into their land while animals retain exclusive grazing rights in national parks, and people are strictly forbidden to graze there even in times of extreme famine.[25]

The experience also shows the benefits of multiple use as in the Ngorongoro Conservation unit where wildlife and people coexisted peacefully for centuries. When small areas of high animal density are set aside and human activities are discouraged as in the case of the Ngorongoro and Embakai craters, people tend to understand. They reply that even in the old days places with a lot of wild and dangerous animals were avoided by people. Wild animals in return kept out of populated areas.

SOME SOLUTIONS FOR BETTER MANAGEMENT

The boundary problem can be solved by encouraging conservation areas in the place of national parks. If the existing national parks are to continue to remain, they should relax their boundary regulations to tolerate the intrusion of domestic animals now that they have failed to prevent their animals from entering the tribal lands. The presence of Maasai cattle can help to keep bush at check and fire can be used as a management tool in areas where bush is out of control.

The Maasai attitude toward wildlife can be changed by sharing the wildlife profit (tourist money) with them.

The area must be managed as a whole and not discriminate against the people. From a realistic point of view the animals so far have been parasites to the Maasai, and the Maasai the host. Presently the Maasai are not a threat to wild animals. But if they fail to get tangible profits they will be forced to become a threat. Also, if more land

is allocated to public use or agriculturalists are allowed to encroach, the land will get smaller, competition will intensify and animals will be the first to go.

If the Maasai get the essential things like schools, hospitals, veterinaries and water, and are made aware that it is derived from tourists' money, they will start to appreciate the existence of wildlife in their land.

Another way to arouse concern for wildlife management among the local people is through educational programs and persuasion by their own cattle-oriented leaders. There is a limit as to how much game department employees can do by themselves in affecting the attitudes of cattle people like the Maasai toward wildlife. Cattle people sometimes feel that a game department employee has a view which may be biased toward wildlife and not fully appreciative of the cattle people's situation. Therefore, the best approach is the use of an information team composed of wildlife department employees and recognized spokesmen of the cattle people -- an integrated group of experts, whose ideas will be recognized and accepted by the local people and appreciated by conservationists.

The many problems I have tried to explain still persist in the development approaches which are being applied in Maasailand. The future is not very promising. Indeed, from a historical perspective, the immediate future of Maasai pastoralism appears bleak and obscure.

If pastoralism ceases to exist, wildlife will also disappear, probably before the cattle. Experience shows that pastoralism is more tolerant of wildlife than is agriculture.

Pastoralism should, therefore, be encouraged if wildlife is to remain and flourish. Pastoralism, even at present, plays an important role in supplying protein for East Africa. It will, no doubt, play an even bigger part if management can be improved. This would involve modifying and upgrading pastoral methods through such techniques as improved watering systems, veterinarian services and marketing opportunities.

On the contrary, the idea of substituting agriculture for pastoralism should be forgotten. The pastoral people still enjoy a better protein diet than the mixed agriculturalists in the same area. The latter people have a diet of starch and carbohydrate foods.

For the survival of the Maasai and wildlife, as well as for the many related economic values, pastoralism should be encouraged and managed to contribute to the development of East Africa.

FOOTNOTES

1. A. H. Jacobs, Pastoralism in Tropical Africa, ed. T. Monod (International Africa Institute, Oxford University Press, 1975), pp. 406-422.

2. A. H. Jacobs, "The Traditional Organization of the Pastoral Maasai" (Ph.D. thesis, Oxford University), p. 427.

3. D. Branagan, "The Development of Maasailand" (unpublished report, Department of Veterinary Services, Government of Tanganyika, February 1962), p. 23.

4. A. H. Jacobs, Pastoralism in Tropical Africa, pp. 406-422.

5. D. Branagan, "The Development of Maasailand," p. 23.

6. E. B. Worthington, "The Scientific Basis for Conservation," Mamalia Journal 22 (1958).

7. A. H. Jacobs, Pastoralism in Tropical Africa, pp. 406-422.

8. Richard Bell, "The Use of the Herb-layer by Grazing Ungulates in the Serengeti National Park" (Ph.D. thesis, University of Manchester).

9. Peter Matthiessen and Eliot Porter, The Tree Where Man Was Born: The African Experience (New York: Crescent, 1975) p. 123.

10. Cynthia Moss, Portraits in the Wild Behavior Studies of East Africa Mammals (Boston: Houghton Miffin Company, 1975).

11. Norman Myers The Long African Day (New York: MacMillan Company, 1972).

12. A. H. Jacobs, Pastoralism in Tropical Africa, pp. 406-422.

13. Ibid.

14. H. M. Prowse, "Wildlife Administration and the Safari Industry in Botswana" (Ph.D. thesis, Resource Planning and Conservation, University of Michigan, 1974).

15. Norman Myers, "Of All Things, People Are the Most Precious," New Scientist (1975).

16. "Management Policy in the National Parks," report by Prof. E. Walter Russell.

17. Norman Myers, "National Park in Savanna," Africa Science 78 (December 1972).

18. George R. Hall, "The Myth and Reality of Multiple Use of Forestry," Natural Resources Journal 3 (1963): 290-276.

19. Norman Myers, "National Park in Savanna Africa."

20. Dr. Dirschl, "The Master Plan of the Ngorongoro Conservation Unit," 1966.

21. G. G. Knight and S. L. Newman, Contemporary Africa: Geography of Changes (Englewood Cliffs, N. J.: Prentice Hall, 1976).

22. Harold Hayes, The Last Place on Earth (New York: Stein and Day, 1977).

23. Michael and Bernard Grzimek, Serengeti Shall Not Die (New York: Ballantine Books, 1959).

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